American Society for Testing Materials BULLETIN

ISSUED BI MONTHLY

Activities of the A.S.T.M. in 1932

A review of the major activities and accomplishments of the Society and its committees for the past year and, at the same time, an indication of what work is ahead for 1933.

New York Regional Meeting

A Symposium on Motor Lubricants will be held on March 8. Spring Group Committee Meetings are scheduled for week of March 6.

January, 1933

ENGINEERS' CLUB BUILDING
1315 SPRUCE ST., PHILADELPHIA

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AMERICAN SOCIETY *for* TESTING MATERIALS

NEW YORK REGIONAL MEETING

▲ PROGRAM ▲

NEW YORK REGIONAL MEETING

Hotel New Yorker ' ' *Wednesday, March 8*

Symposium on Motor Lubricants

The Metropolitan Section of the Society of Automotive Engineers is co-operating with the A. S. T. M. in this program.

AFTERNOON SESSION
2.00 P. M.

Present Concepts of the Relation of A. S. T. M. Pour Test to Service Requirements of Oils
J. L. McCLOUD, Metallurgical Chemist, Ford Motor Co.

Viscosity of Automobile Crankcase Oils As Related to Service Requirements
E. W. UPHAM, Chief Metallurgist, Chrysler Corp.

Carbon Deposits in Gasoline Engines
W. A. GRUSE, Senior Fellow, Mellon Institute of Industrial Research

Service Changes in Crankcase Lubricating Oils
M. A. DIETRICH, Graduate Student, Ohio State University

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Informal Dinner Beginning at 6.00 P. M.

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EVENING SESSION
8.00 P. M.

Oil Consumption in Motor Car Engines
W. H. GRAVES, Chief Metallurgist, Packard Motor Car Co.

Factors in Engine Design Which Affect Oil Performance
A. L. CLAYDEN, Research Engineer, Sun Oil Co.

Aircraft Engine Lubrication
ARTHUR NUTT, Vice-President in Charge of Engineering, Wright Aeronautical Corp.

Discussion Will Follow the Presentation of Each Paper

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American Society for Testing Materials

BULLETIN

ENGINEERS' CLUB BUILDING 1315 SPRUCE STREET PHILADELPHIA, PA.

NUMBER 60 JANUARY 31, 1933

Symposium on Motor Lubricants at New York Regional Meeting

THE technical feature of the 1933 Regional Meeting which will be held in the Hotel New Yorker, New York City, on March 8 is to be a Symposium on Motor Lubricants. Seven technical papers will be presented as listed on the inside front cover of this BULLETIN. Attention is directed to the fact that no morning session has been scheduled; instead, the presentation of the papers will take place in afternoon and evening sessions. The New York District Committee, which is sponsoring arrangements for the meeting, feels that the younger technical men will find this arrangement more convenient than the plans previously in effect at these meetings. Many of those who would not otherwise find it possible to attend either session can now be present at least at the dinner and evening session.

Symposium on Motor Lubricants

The Symposium on Motor Lubricants is sponsored by A.S.T.M. Committee D-2 on Petroleum Products and Lubricants with the Metropolitan Section of the Society of Automotive Engineers cooperating. Committee D-2 has carried out a great deal of valuable work in promulgating and standardizing tests used in evaluating petroleum products and it likewise has been instrumental in pointing out the significance of the various tests most commonly used. In the present symposium the Committee plans that the discussion of motor lubricants shall not only dwell on the necessity for adequate tests, but shall treat the subjects on which papers will be given in a broader sense.

The men who will present papers are recognized as prominent authorities in the lubricating field. Each of them brings to his subject a background of extensive service in industry and in research study. Because motor lubricants are derived chiefly from petroleum, itself an extremely complex raw material, varying greatly in composition in various producing fields, there are technical points in any treatise involving petroleum products which are highly controversial. It is accordingly expected that considerable discussion will follow the presenting of each paper.

While the petroleum and automotive engineers will be especially interested in the symposium, the subject also is an important one to many other groups, and all engineers will find the papers and discussion interesting and instructive. All members of the Society and other engineers and technical men who can arrange to be present are cordially invited to attend the Regional Meeting.

Members who desire a copy of the preprint pamphlet containing the technical papers to be presented should fill in and return the enclosed request card.

Group Meetings of Committees

There is given below a list of committees which have thus far signified their intention of holding meetings in New York during the week beginning March 6. The policy of grouping spring meetings of committees during one week has been in force for several years and committees find it very valuable in conserving the time and expenses of their members who must follow the activities of more than one committee. Meetings are scheduled so as to result in a minimum of conflicts to the committee members. All of these meetings will be in the Hotel New Yorker. The following committees plan to meet during the week:

A-1 on Steel
A-2 on Wrought Iron
A-3 on Cast Iron
A-5 on Corrosion of Iron and Steel
A-10 on Iron-Chromium-Nickel Alloys
B-2 Sub VII on Methods of Chemical Analysis
B-3 Subs VI on Atmospheric Corrosion
VII on Corrosion in Liquids
VIII on Galvanic and Electrolytic Corrosion
B-5 on Copper and Copper Alloys, Cast and Wrought
B-7 on Light Metals and Alloys
C-9 on Concrete and Concrete Aggregates
C-10 on Hollow Masonry Building Units
D-1 on Preservative Coatings for Structural Materials
D-2 on Petoleum Products and Lubricants
D-4 on Road and Paving Materials
D-8 on Bituminous Waterproofing and Roofing Materials
D-11 on Rubber Products
D-13 on Textile Materials
D-15 on Thermometers
D-17 on Naval Stores
D-18 on Natural Building Stones
E-4 on Metallography
Joint A.S.M.E. – A.S.T.M. Research Committee on Effect of Temperature on the Properties of Metals
Joint Committee on Investigation of the Effect of Phosphorus and Sulfur in Steel
Coordinating Committee of Sectional Committee A-42 on Specifications for Plastering
B-36 Sectional Committee on Wrought-Iron and Wrought-Steel Pipe and Tubing
G-8 Sectional Committee on Zinc Coating of Iron and Steel
Z-23 Sectional Committee on Sieves for Testing Purposes

Reduced Railroad Rates

Application has been made to the passenger associations for reduced rates to New York during the Regional Meeting and the Spring Group Committee Meetings. These reductions have been granted for several years and it is fully expected that they will be in effect this year. The reduction will be on the certificate plan at fare and one-half for the round trip, provided the same route is used both going and returning and provided further that 100 certificates are turned in for validation. Members should purchase the regular one way ticket to New York at their railroad ticket office and must secure a certificate (*not a receipt*) from the ticket agent when making the purchase. These certificates will be validated by the railroad representative at the A.S.T.M. registration desk in the Hotel New Yorker. Members will then be able to purchase the return ticket at one-half fare. These special rates will afford a considerable saving to many of our members and it is accordingly urged that each member secure a certificate whether or not he intends to use it, and to deposit it at the registration desk immediately on his arrival, since the reduction in rates cannot become effective until 100 certificates have been turned in.

Local Engineering Groups Advance Standardization

A recent issue of *Cleveland Engineering*, the weekly bulletin of the Cleveland Engineering Society called attention to the work of the Building Code Committee of that organization. This committee has for several years cooperated with various city and state officials toward the development of a satisfactory plumbing code and has been in touch with the Building Code Committee of the U. S. Department of Commerce. Recently the Cleveland Committee was invited by the American Standards Association to be represented on a Sectional Committee on Standardization of Plumbing Equipment sponsored jointly by the A.S.M.E. and the American Society of Sanitary Engineers, thus giving rather signal recognition to this local organization.

The Rochester Engineering Society is another group which has had a standards committee as part of its organization set-up. When first organized, the committee, then a joint one with the Rochester Builders Exchange, issued several standards. However, the rapid growth of standards as developed by national organizations obviated the necessity of formulating local standards and the work of the present Standards Committee consists primarily of keeping the parent society in touch with standards developed by national and international organizations.

The work of the two societies referred to is of much value. In standardization work, the actual development of an acceptable standard is only the beginning; the difficult part is to get standards into actual use. It is not so much a question of selling the benefits of standardization as a whole, but to get purchasers and others to avail themselves of existing standard specifications.

We should be interested to learn of work being done by other local groups similar to that mentioned above.

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What Shall I Talk About?

A year ago, attention was called in the BULLETIN to talks which certain members of the Society had delivered, in one case to an informal gathering of business men, in another to a regular meeting of the Kiwanis Club, both using the "American Society for Testing Materials" as their subject. Because of the interest evinced by the groups who heard these men, it was suggested that possibly other members of the Society would find the A.S.T.M. a fitting subject on which to give a rather interesting talk. Since there was material at A.S.T.M. headquarters which would be of service in preparing such an address, members were requested to write in for copies of this material if they contemplated giving talks and were at a loss for a subject.

During the year, there have been several requests for this material, and the reports we have of the way in which "A.S.T.M." talks were received point to the desirability of an extension of this activity. This is one way in which every member of the Society can be a distinct help. It is a fact that knowledge of the A.S.T.M. is not nearly as widespread among business men as it should be. Its work affects the daily life of everyone and business men especially should have a full appreciation of its activities.

The offer made a year ago is again repeated. If any of the members are called upon to give a talk or address before a group, Headquarters is prepared to furnish pamphlets and information which can be used as a basis.

Committees for Annual Meeting Arrangements Announced

Plans for this year's annual meeting, which, as previously announced, is to be held in Chicago at The Stevens, June 26 – 30, are rapidly rounding into definite form. The Chicago District Committee which is in charge of arrangements for the meeting is keeping in close touch with the Century of Progress Fair authorities with respect to Engineering Week, and through Mr. Homer Farmer, chairman of the District Committee, who is a member of the Committee on Arrangements, is taking an active part in coordinating the plans of the cooperating societies for Engineers' Day.

The following committees have been appointed to direct various activities for the District Committee:

General Committee
H. G. Farmer, Chairman
H. H. Morgan, Vice-Chairman
Frank Randall, Secretary

Publicity Committee
H. P. Bigler, Chairman
G. C. D. Lenth
O. L. Moore

Industrial Trips
L. I. Shaw, Chairman
T. L. Condron
J. de N. Macomb
H. D. Browne
F. R. McMillan

Tennis Committee
F. L. Crane, Chairman

General Information
L. S. Marsh, Chairman
F. M. Carroll
G. L. Lindsay
H. H. Morgan
H. F. Gonnerman
Grant Monk

Ladies Committee
Mrs. L. S. Marsh, Chairman
Miss M. I. Burgeson, Secretary
Mrs. H. H. Morgan
Mrs. G. L. Lindsay
Mrs. Albert Reichmann

Golf Committee
H. B. Emerson, Chairman
T. A. Hicks

Technical Program and Exhibit

The December BULLETIN outlined the major technical features which will be a part of the meeting, including the Symposium on Cast Iron (jointly sponsored with the A.F.A.), the several papers on "Significance of Tests of Concrete and Concrete Aggregates" and the extensive report of Committee B-7 on Light Metals and Alloys which will include important data on properties of light metals. Definite progress is reported in the case of each of the subjects, and the sessions at which the various papers involved in the discussions will be given promise to be very interesting and profitable ones.

Many members especially interested in the Symposium on Cast Iron (planned for Monday, June 26) will undoubtedly wish also to attend the joint meeting of the American Foundrymen's Association and the A.S.T.M. scheduled for Friday, June 23, at The Stevens. The technical discussion at this session of the A.F.A convention will involve "Specifications and Tests for Cast Iron."

Several manufacturers of testing and related equipment have already reserved space in the Second Exhibit which will be in progress during the week of June 26. Members of the Society who attended the First Exhibit in 1931 were very pleased at the opportunity afforded to determine just what apparatus was available. The Second Exhibit should attract a great many of the thousands of engineers who will be in Chicago during Engineering Week and exhibitors can thus contact many engineering groups other than the A.S.T.M.

With the Century of Progress Fair in full swing and special programs being given during Engineering Week, members will be afforded an unusual opportunity to combine in one trip to Chicago, attendance at the A.S.T.M. meeting and inspection of the many attractions in the Fair.

Subsequent issues of the BULLETIN will carry further detailed announcements concerning the annual meeting and exhibit.

A.S.T.M. in 1932

A Review of Major Society Activities

IT is the usual practice to take an inventory at the close of the year, and the A.S.T.M. BULLETIN is quite in agreement with this custom. There are a number of accomplishments and achievements in Society work for the past year which can be appropriately brought in review.

Following this bird's-eye view of outstanding A.S.T.M. achievements during 1932, there are described the more important developments in committee work. An attempt has been made to present this material in such a way that a reader interested in a specific field of A.S.T.M. committee work can refer directly to it.

Meetings and Symposiums

During 1932, there were several A.S.T.M. meetings which were most successful in advancing the work and purposes of the Society. The annual meeting, held at Atlantic City, was, despite the subnormal attendance, a most successful one from the standpoint of work accomplished. The number of committee meetings held was fully as great as in any previous year. The technical papers and reports presented were distinct contributions to our standardization and research work. A Symposium on Steel Castings, sponsored jointly with the American Foundrymen's Association, was held in two sessions of the meeting. The ten valuable papers presented evoked much discussion which added greatly to the value of the published work. The data on alloy-steel castings were especially pertinent and are of great value to the engineer. In the session devoted to textiles, seven papers were given covering important aspects of enzyme action, asbestos textiles, manila rope and rayon.

The several papers making up the round table discussion on "Acquisition of Good Data" emphasized the growing importance of applying statistical methods to analyses of research results and other data. Two formal papers on this subject were included in other sessions, one showing how control analyses can be applied to the quality of cambric tape, the second discussing controlled data from an immersion test.

An extensive paper on "Embrittlement of Hot-Galvanized Structural Steel" comprised the report of the important research on this subject sponsored by the Society.

Regional and Local Meetings.—The third regional meeting was held in Cleveland during March. A Symposium on Rubber was the technical feature—aimed to give the engineer pertinent information and data on this material which is finding increased engineering applications.

Several very successful local meetings were held during the year in centers where A.S.T.M. district committees are active. The technical programs given in each case included subjects of much importance to the engineer and the wide publicity subsequently given the papers presented is evidence of their value.

In February, the New York Committee under the chairmanship of Past-President F. M. Farmer, Vice-President, Electrical Testing Laboratories, arranged a joint meeting of the A.S.T.M. members in the New York district and certain sections and divisions of the American Institute of Mining and Metallurgical Engineers. The attendance exceeded 700. Doctor F. O. Clements, Technical Director, Research Laboratories, General Motors Corp., gave a well received paper on "Limitations of Our Fundamental Knowledge of Properties of Metals," and Prof. H. F. Moore, Professor of Engineering Materials, University of Illinois, presented a thought-provoking address on "Test Results and Service Values of Materials." These two papers attracted wide attention. Later, in April, the New York group had another technical meeting devoted to a discussion of petroleum, papers for which were sponsored by A.S.T.M. Committee D-2 on Petroleum Products and Lubricants.

The Detroit District Committee, headed by Past-President Clements, sponsored a joint meeting of our members in that district and the Detroit chapters of the S.A.E. and A.S.S.T. Seven prominent automotive technologists addressed the 350 engineers present on phases of the important subject "Service Testing of Automotive Products and Correlation with Laboratory Tests." This was one of the first meetings to be devoted to a discussion of this subject.

In April, the Chicago District Committee, whose chairman is Homer G. Farmer, Technical Service Director, Universal Atlas Cement Co., sponsored its first local meeting, a joint one with the Western Society of Engineers. Professor Moore presented a paper on "Relation of Tested Material to Safe and Economic Engineering." The attendance was upwards of 200.

Later in the year (November) the New York group held another meeting at which four extensive papers on "Timber as an Engineering Material" were given by prominent authorities. Committee D-7 on Timber sponsored the program under the direction of Dr. Hermann von Schrenk, Consulting Timber Engineer. The splendid attendance at each of these local meetings and the widespread attention they have received are a direct reflection of the well-planned efforts of the respective district committees. As a whole, these meetings with their technical contributions, are one of the outstanding activities of A.S.T.M. during 1932.

Standards; New Committees Organized

At the close of the year, there were 667 standards and tentative standards which had been approved by the Society. This large increase over the 623 as of January 1, 1932, is due to the many tentative standards approved during the year, indicating that committee activities were very little affected by the depressed business conditions.

1932 saw several new committees organized and started on their work. Committee D-19 on Analysis of Waters for Industrial Uses perfected its organization and has instituted fundamental work. Another committee which was formed, whose work will become of increasing importance, is E-2 on Spectrographic Analysis. Personnel, subcommittees and details of this new committee were announced in the July BULLETIN.

Committee C-13 on Concrete Pipe was organized as detailed in the December BULLETIN and Committee C-4 perfected its reorganization plans to function in the field of clay pipe. Several new subcommittees of existing standing committees were formed to study specific phases of the parent committee work.

Marburg Lecture

The Seventh Edgar Marburg Lecture, given annually and named in commemoration of the Society's first Secretary-Treasurer, was delivered by Prof. Hugh S. Taylor, Head of

(*Continued on page 6*)

AMERICAN SOCIETY FOR TESTING MATERIALS

BULLETIN

Issued Bi-Monthly

Engineers' Club Building, 1315 Spruce St., Philadelphia, Pa.

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Number 60 January 31, 1933

The View Ahead

THERE begins on page 3 of this BULLETIN a review of Society activities during the past year. No one reading this article can fail to appreciate the great amount of work that has been accomplished by the standing committees. The significance of this review, however, is not what has taken place, but rather the promise that is afforded of worthwhile accomplishments in the year ahead. While many of the items recorded cover work that has been completed, there is a great predominance of items described on which only certain phases of the work have been completed and on this work, now in progress, the committees will continue their efforts.

It is indeed surprising and noteworthy that there has been such a relatively small diminution of committee activities. 1932 was a year which tested the mettle of companies and organizations and it can be unquestionably stated that only essential work and service have been given a place by industry. Consequently, it is gratifying to know that many branches of industry have considered research and standardization in the engineering materials fields to be so essential they have decreed that this work must go forward.

It is true that there is some curtailment and retarding of some activities, but by and large the committee programs as a whole have been splendidly supported. Another significant point is that several new activities have been successfully inaugurated. New standing committees have been organized and are at work, and existing groups have extended their work and have formed new subcommittees to direct research and standardization activities on important industrial problems. All this spells progress.

The Society has completed the year 1932 with no material curtailment of service to its members and yet on the right side of the ledger so far as finances are concerned. It is accordingly in an excellent position in starting the new year and looks for the successful continuation and completion of many research and standardization activities.

Your Opportunity for Service

EACH member of the A.S.T.M. has by virtue of his membership a wonderful opportunity for service—to himself, to industry and to the Society. Through his membership, he is a partner in a great cooperative enterprise for the promotion and dissemination of engineering knowledge of materials and for the standardization of specifications and methods of test. He has made an investment of his time, his technical knowledge and his membership dues in order that he may receive dividends in increased knowledge and technical information, in pleasant and profitable personal contacts, in opportunities to hear, present and discuss technical papers, and in the consciousness that he is being of service to industry and to his fellow men. The return from the investment obviously depends on how much each member contributes in effort and technical knowledge and particularly on the number of members in the enterprise. As in all cooperative activities, the services and advantages of the A.S.T.M. expand rapidly with increasing membership. A greater number of members not only will mean more funds for research and publications, but will also bring added return in the form of reduced overhead per member and wider participation in and distribution of the benefits of the Society's work. Membership growth earns ever increasing dividends.

To multiply your opportunities for service, therefore, you must be alert to secure additional members for the Society. No one who thoughtfully considers the service which A.S.T.M. renders to industry and to himself will voluntarily relinquish his membership, but renewal alone will not produce the extra dividend. To accomplish this, it is necessary for each to secure an additional member. Many individuals and companies who need the services which A.S.T.M. renders will be glad to become partners in our enterprise *if the opportunities and benefits are pointed out to them and an invitation extended.* This year, especially, the publication of the triennial Book of Standards, the important research programs under way and the many special publications provide unusual advantages. The difficult thing is for your Society to reach those outside of its ranks and to cover the field thoroughly. On the other hand, this can easily be accomplished if each member will take the responsibility on himself. Personal effort will produce results which can be obtained in no other way. In accepting this obligation and securing a new member for the Society you are but working for yourself. You are multiplying your service to the Society and that of the Society to industry and to you. You are helping to earn the added dividend. Will you do your share?

Arthur W. Carpenter

Chairman, Committee on Membership.

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Addresses Wanted

Anyone knowing the present address of any of the following members, whose last known addresses are listed below, is asked to notify the Secretary-Treasurer:

Walter F. Graham, Technical Director, Caskey Brass and Bronze Works, Inc., Richmond and York Streets, Philadelphia, Pa.

John C. March, Student Member, 403 W. Eighth Ave., Columbus, Ohio.

H. Comer Wolf, Vice-President and Manager, Wolf Engineering Co. Inc., Iantha, Mo.

Schedule of Committee Meetings

DATE	COMMITTEE	PLACE
February 22	M-20—Sectional Committee on Classification of Coals	New York City
February 23	B-6 on Die-Cast Metals and Alloys	New York City
February	B-4 on Electrical-Heating, Electrical-Resistance and Electric-Furnace Alloys	New York City
February	Subcommittee I of Committee B-5 on Copper and Copper Alloys, Cast and Wrought	New York City
February	C-8 on Refractories	Pittsburgh
February	E-6 on Papers and Publications	Philadelphia
March 6–10	SPRING GROUP MEETINGS OF COMMITTEES	New York City
April 11	Executive Committee	Philadelphia

What Price A.S.T.M.?

President Chapman Points Out A Profit Possibility

How valuable is your A.S.T.M. stock to you? To others? To industry? Is A.S.T.M. worth working for? Worth building up for more and wider usefulness? For service to more industries? How much would it mean to you to have the Society continue to grow and expand? Is it worth a day's work? An "energy dollar?"

If it is, then spend that energy dollar in telling non-members who ought to be members what you know and believe about A.S.T.M. If enough such "dollars" are spent between now and the June meeting, stock in A.S.T.M. will take a jump—and your stock will be enhanced in value.

Clayd M. Chapman

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1933 Nominating Committee Appointed

The letter ballot on recommendations for appointments on the Nominating Committee for Officers was canvassed by the committee of tellers consisting of Alexander Foster, Vice-President and Manager, Sand and Gravel Dept., Warner Co., and T. Holland Nelson, Consulting Metallurgist, Philadelphia. In accordance with this ballot, the Executive Committee has made the following appointments on the Nominating Committee:

Members	*Alternates*
Louis Anderson	J. H. Chubb
F. M. Farmer	J. R. Townsend
S. R. Church	W. H. Fulweiler
A. M. Tenney	J. B. Sidebotham, Jr.
A. A. Stevenson	H. W. Gillett
H. T. Shelley	(To be appointed)

In addition to these members, the Nominating Committee will also include, in accordance with the By-laws, the three Past-Presidents, Messrs. Lynch, Mackenzie and Clements. This committee will meet on March 4 and make nominations for president, one vice-president and five members of the Executive Committee to succeed those whose terms of office expire at the coming annual meeting.

New Members to January 23, 1933

The following 29 members were elected from December 1, 1932 to January 23, 1933:

Company Members (3)

Braeburn Alloy Steel Corp., N. I. Stotz, General Superintendent, Braeburn, Pa.
Felters Co., Inc., The, G. H. Wood, Manager, Box 567, Millbury, Mass.
Western Felt Works, Henry Faurot, Jr., Treasurer, 4029 Ogden Ave., Chicago, Ill.

Individual and Other Members (22)

Bartels, E. E., General Superintendent, Lago Oil and Transport Co., Ltd., Aruba, Dutch West Indies.
Bayless, F. B., Metallurgist, Oil Well Supply Co., Imperial Works, Oil City, Pa.
Beall, A. L., Engr., Socony Vacuum Corp., 26 Broadway, New York City.
Brown, Joseph A., Secretary and Treasurer, Baltimore Brick Co., 709 Maryland Trust Bldg., Baltimore, Md.
Buckingham, N. R., Engr., Atlas Drop Forge Co., Mt. Hope Ave., Lansing, Mich.
Easterly, H. W., Vice-President, Concrete Pipe and Products Co., Inc., 1622 Central National Bank Bldg., Richmond, Va.
Heussner, C. E., Physical Chemist, Chrysler Corp., Detroit, Mich. For mail: 672 Gladstone St.
King, J. L., Manager, Sales Engineering Dept., The Pennzoil Co., Drake Bldg., Oil City, Pa.
Mars, Yuinpeng, 133 Linden Ave., Ithaca, N. Y.
Marsden, W. R., Fabric Technologist, The Kelly-Springfield Tire Co., Cumberland, Md.
Marshall, J. F., General Sales Manager, American Felt Co., 315 Fourth Ave., New York City.
Marsiglio, E. F., Director of Research, J. T. Baker Chemical Co., Phillipsburg, N. J. For mail: 230 Porter St., Easton, Pa.
McMenamin, J. F., Felton, Sibley and Co., Inc., 136 N. Fourth St., Philadelphia, Pa.
Miller, G. W., Lubrication Engr., American Lubricants, Inc., 1575 Clinton St., Buffalo, N. Y.
Nau, C. A., Wilbur Watson and Associates, 4614 Prospect Ave., Cleveland, Ohio.
Porter, A. J., Jr., Manager, Heppenstall Co., 95 Howard Ave., Bridgeport, Conn.
Reel, R. M., Chief Chemist, Pharis Tire and Rubber Co., 367 W. Locust St., Newark, Ohio.
Savarie, L. P., Textile Technologist, Manville Jenckes Co., Manville, R. I. For mail: 593 Main St., Pawtucket, R. I.
Simon, C. L., Partner, Industrial By-Products and Research Corp., Gimbel Bldg., Eighth and Market Sts., Philadelphia, Pa.
Stauderman, A. E., Director of Laboratories., Devoe & Raynolds Co., 383 Hamilton Ave., Brooklyn, N. Y.
Stivers, E. R., Director, Package Research Lab., Rockaway, N. J.
Wiggam, D. R., Assistant Director, Experiment Station, Hercules Powder Co., Wilmington, Del.

Junior Members (4)

Atkinson, W. H., Chemical Engr., Asbestos Mfg. Co., Huntington, Ind.
Crawley, E. H., Superintendent, Simrall Refining Corp., Box 72, Horse Cave, Ky.
Folsom, R. G., Junior Engr., Pasadena Water Dept., City Hall, Pasadena, Calif. For mail: 587 N. Mentor Ave.
Toeplitz, W. R., Metallurgist, Public Service Electric and Gas Co., Irvington, N. J. For mail: 18 Westervelt Place.

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Offers of Papers for 1933 Annual Meeting

There is still ample time for members who wish to submit offers for technical papers for presentation at the 1933 annual meeting in Chicago to submit their offers for the consideration of the Committee on Papers and Publications. The limiting date fixed for receipt of these is February 23, but the committee will appreciate having information as far in advance of this date as possible. All offers of papers must be accompanied by a summary of the proposed technical contribution which should make clear its scope and bring out the features that make it in the opinion of the author sufficiently valuable for presentation and discussion.

(*Continued from page 3*)

the Chemistry Department, Princeton University. His subject was "Fundamentals in the Problem of Resistance to Deterioration." He emphasized the importance of concentrated studies of chemical reactions, especially their speed, and the necessity of investigating and discovering inhibitors if the present huge losses due to deterioration are to be lessened. This lecture, appearing in *Proceedings*, is one of the finest that has been given in the series.

Research

There are at present over 120 research projects on which A.S.T.M. committees are at work. A complete summary of these appeared in the October issue of the BULLETIN. This was divided into two parts, Part I—Research on Properties of Materials and Part II—Research on Methods of Testing. To anyone who is desirous of obtaining concise data on the many projects, with references to sources of more complete information, or who wishes to ascertain whether or not the A.S.T.M. is working on specific problems, this extensive summary is commended.

The important developments in committee work during 1932 are outlined in the following paragraphs. Each year the officers of the standing committees submit statements outlining the progress of their groups. This information is incorporated in the article.

Effect of Temperature on Metals

The Joint Research Committee on Effect of Temperature on the Properties of Metals reported a continuation of its sponsored research studies despite the handicaps imposed by economic conditions. Detailed reports were presented on a cooperative study of impact and magnetic properties and the structural stability of the 18 per cent chromium, 8 per cent nickel stainless steels, with carbon contents of 0.06 and 0.085 per cent, under different heat treatments. This work is being continued and the results will be correlated with further studies on these materials. A correlation of tension, creep and fatigue properties of a 0.17 per cent carbon boiler steel at elevated temperatures was reported. Research studies of endurance, creep and structural stability of austenitic nickel-chromium steels at high temperatures, sponsored by the committee, are under way at the University of Illinois and Battelle Memorial Institute.

The results of long-time creep tests on alloys of the copper-zinc and copper-zinc-tin series were reported by C. L. Clark and A. E. White in a paper on "Influence of Recrystallization Temperature and Grain Size on the Creep Characteristics of Non-Ferrous Alloys."

Fatigue and Corrosion-Fatigue

The report of the Research Committee on Fatigue of Metals contained two valuable articles on present-day knowledge of fatigue phenomena in metals, one on the corrosion-fatigue of metals and the other on the significance and limitations of fatigue test results. The report points out that spreading fatigue cracks constitute the majority of failures in machine parts.

The endurance limit seems to be the best criterion for judging resistance of a metal to fatigue failure. At high temperatures, fatigue failure may be important below a certain temperature range, but above that range creep may become the dominant factor. The mechanism of corrosion-fatigue seems to consist in the mechanical breaking down by repeated stress of the protective film of oxide which is found on nearly all metals, and consequent progressive spread of corrosion pits followed by the formation of a spreading fatigue crack. No reliable accelerated test for fatigue has yet been developed.

A study of "Fatigue of Shafts Having Keyways" described in a paper by R. E. Peterson indicates that the sled-runner type of keyway is preferable to the profile type from the standpoint of fatigue. Tests on "Effect of Zinc Coatings on the Endurance Properties of Steel" were described in a paper by W. H. Swanger and R. D. France.

Steel

The Committee on Steel presented to the Society new specifications for structural medium steel, 60,000 to 72,000 lb. per sq. in. tensile strength, as a result of a demand for a construction steel for special work of heavy character. New specifications were also developed for structural rivet steel. Concrete reinforcement bar specifications were tentatively modified by the elimination of the machining clause, by defining the bend test procedure, and in defining "theoretical weight" and "lot." As a result of a request from the Boiler Code Committee of the American Society of Mechanical Engineers, the standard specifications for lap-welded and seamless steel and lap-welded iron boiler tubes were revised to provide for higher tensile strength boiler tubes. New specifications for electric-fusion-welded pipe in sizes up to 30 in. were issued. Changes were made in five specifications covering various types of fabricated pipe.

Consideration is being given by the Steel Committee to specifications for high tensile strength boiler steel and rivet steel. Due to the increasing use of higher working temperatures and pressures the development of specifications covering steel for high-temperature service is of much importance. A revision of the standard specifications for lap-welded and seamless steel pipe for high-temperature service has been completed and specifications are being prepared for castings, bolting and flanges for temperatures above 750 and up to 850° F.

Wrought, Cast and Malleable Iron

The Committee on Wrought Iron is preparing specifications for wrought-iron rivets and as the result of a demand for certain sizes of structural material made of wrought iron consideration is being given to structural shapes and also to plates and sheets. A correlation of data and information covering physical properties, chemical analysis and structural characteristics of wrought iron has been undertaken with the object of issuing a brochure on quality standards for wrought iron.

One of the principal activities of Committee A-3 during the past year has been the development of new tentative specifications for gray-iron castings which classifies these castings in accordance with minimum tensile strengths of test bar. Seven classes are covered ranging from 20,000 to 60,000 lb. per sq. in.

Several years ago Committee A-3 was asked to develop specifications for cast-iron culvert pipe. The result of its work has been the preparation of tentative specifications covering three grades of cast-iron culvert pipe issued this year. For several years the committee has been conducting an investigation on the impact testing of cast iron. Thousands of tests have been made through cooperative work of investigators under the supervision of Subcommittee XV on Impact Testing and the data have all been collected. The report is now being written and will be presented at the annual meeting of the Society in June. Consideration is being given to the heat treatment of gray cast iron, a subject which is developing rapidly.

The Committee on Malleable Iron Castings completed a specification for a new grade of casting of higher strength, 35,000 lb. per sq. in. yield point, principally for railroad service. The committee is considering studies of galvanizing embrittlement of malleable-iron castings and the corrosion-resistant properties of malleable iron, particularly castings for overhead trolley construction. Consideration is also being given to castings suitable for pipe fittings, valves and valve parts.

Ferro-Alloys

Committee A-9 on Ferro-Alloys completed the preparation of specifications for ferrotungsten, for low-carbon ferromolybdenum and for molybdenum salts and compounds which were published as tentative. Procedures for the chemical analysis of ferrotungsten and ferromolybdenum were also prepared from the most accurate methods used today in determining the percentages of the various elements in these ferro-alloys. It is intended that these methods will supplement the present standard methods.

Magnetic Testing

The Committee on Magnetic Properties has revised the procedures for magnetic testing at high magnetizing forces following studies of the fundamental problems and differences associated with such tests. Further studies of methods for low induction testing and of the revised tests at high magnetizing forces will be made and additional data accumulated.

Committee A-8 on Magnetic Analysis is making a survey of magnetic properties of commercially important steels after certain specific heat treatments which will correspond to the treatment given to individual steels in practice. In connection with the work of Committee A-8, it has been observed that the development of practical testing methods is seriously handicapped through the lack of fundamental knowledge of the relationship between magnetic and mechanical properties of steel. A paper on "A Correlation of Some Mechanical and Magnetic Properties of 1.20-per-cent Carbon Tool Steels," by J. V. Emmons and R. L. Sanford has thrown some light on this subject.

Corrosion of Iron, Steel and Non-Ferrous Metals

The Committee on Corrosion of Iron and Steel reported results of further inspections of the several comprehensive corrosion test programs now in progress. The No. 22 gage sheets exposed in sea water at Portsmouth, N. H., since 1917 have now completely failed, while failures of 148 out of the 150 sheets exposed at Key West, Fla., have been reported. As the result of studies of galvanized iron and steel wire and wire products, new specifications representing the best thought on quality requirements for the base materials and coatings for six different types of wire and wire products were prepared.

The tests on metallic-coated hardware, structural shapes, tubular goods, etc., at five test locations are continuing. The preparation of 7000 specimens in the comprehensive field tests on electroplated coatings have been completed and the specimens are now exposed on test racks at six locations representing various atmospheric conditions. The completion of the research study on embrittlement of hot-galvanized structural steel was referred to earlier in this article.

Due to severe criticism of the Preece or copper-sulfate dip test for zinc coatings, a study of "Some Factors Affecting the Preece Test for Zinc Coatings" was reported in a paper by H. H. Walkup and E. C. Groesbeck.

Committee B-3 on Corrosion of Non-Ferrous Metals and Alloys presented a detailed review of its work in the standardization of corrosion resistance testing. A complete description of the atmospheric corrosion test program, as well as a summary of the liquid corrosion studies in the field and of the galvanic and electrolytic corrosion tests on non-ferrous metals and alloys was presented. The report includes also a detailed description of each of the laboratory tests, total immersion, alternate immersion, spray and accelerated electrolytic, together with a critical discussion of each test. The materials used in the corrosion test program are fully described.

The Committee on Screen Wire Cloth presented a progress report on the atmospheric corrosion studies being made at various test locations to determine the relative life of the higher grade wire cloths. The committee described the extent of the failures at the various locations after six years' exposure.

Non-Ferrous Metals; Copper Alloys

Revised standard specifications for copper trolley wire and for bronze trolley wire were accepted by the Society on the recommendation of Committee B-1 on Copper Wire. It is expected that these specifications which are the result of the work of a joint committee representing the American Railway Association, the American Transit Engineering Association and the American Society for Testing Materials will be accepted as the standard of all three associations. Committee B-1 also prepared new tentative specifications for hard-drawn copper transmission cable.

The Committee on Non-Ferrous Metals and Alloys presented revisions in the tentative specifications for fire-refined copper other than lake and reported that a special high grade zinc, usually known as 99.99 per cent, is being considered for inclusion in the specifications for slab zinc (spelter). Consideration is being given by the committee to the preparation of specifications for the various type metals, such as electrotype, linotype, monotype, stereotype and individual type. Revisions of specifications for white metal bearing alloys, known commercially as "Babbitt metal," have been discussed. In this connection an account of the latest research studies at the U. S. Bureau of Standards was presented in a paper by H. K. Herschman and J. L. Basil on "Mechanical Properties of White-Metal Bearing Alloys at Different Temperatures."

The Committee on Copper and Copper Alloys presented specifications covering seamless copper tubes especially designed for plumbing purposes, underground service, etc., and also suitable for copper coil water heaters, fuel oil lines, gas lines and similar installations. Specifications for sheet high brass and for copper and brass pipe were tentatively amended. The specifications for copper-base alloys in ingot form were also modified. Of interest in this connection is the report of a study at the Bureau of Standards on "Factors Affecting the Physical Properties of Cast Red Brass" by H. A. Gardner and C. M. Saeger, Jr.

Electrical-Resistance Alloys

Committee B-4 on Electrical-Heating, Electrical-Resistance and Electric-Furnace Alloys has organized a new subcommittee on thermostatic metals. Standardized nomenclature and test methods for various properties of thermostatic materials will first be developed.

A number of laboratories are cooperating in studies of a method for determining temperature coefficient of electrical resistance of sheet manganin, which include selection of sample, heat treatment, method of connection and the temperature range.

The investigation of a bend test to determine the elastic properties of alloys at temperatures up to 1800° F. has been carried out in four laboratories, with tests being made at temperatures ranging from 950 to 1800° F. Further tests are being arranged for cast material which will be compared against the same alloy in a wrought condition.

A short-time test for tensile properties at high temperatures for cast materials has been worked out and will be presented to the Society as a tentative method. This has been checked in four different laboratories at 1400, 1600 and 1800° F. Creep tests at a high creep rate will be run in three laboratories at 1400, 1600 and 1800° F.

Die Castings

Committee B-6 on Die-Cast Metals and Alloys presented tensile, elongation and impact data on both the aluminum- and zinc-base experimental alloys, as well as expansion data on the zinc-base alloys after both one year indoor and one year outdoor exposures. These data presented in tabular form afford an opportunity for the comparison of the corrosion resistance, the relative severity of various diverse

climatic conditions, and a comparison of accelerated laboratory tests and long-time outdoor exposure.

The committee is considering revising the present tentative specifications for zinc-base alloy die castings to include a new zinc-base alloy. This new alloy possesses slightly lower initial tensile strength than alloy No. XXI covered by the present specifications, but shows less deterioration upon exposure to atmospheric conditions. After the specified water vapor test, the tensile strength, elongation and impact strength of the new alloy is superior to that of alloy No. XXI.

The committee reported the preparation of a report on the finishing properties of die castings. A research program for obtaining data on die-cast white metals has been outlined preparatory to formulating specifications. Committee B-6 is actively following the developments in magnesium and brass die castings and expects to undertake specification activities in these fields when there is sufficient commercial demand.

Light Metals

Committee B-7 on Light Metals and Alloys, Cast and Wrought, has completed specifications for aluminum alloy bars, rods and shapes and for magnesium-base alloy sheet and wrought shapes. Specifications for aluminum alloy tubes and alloy forgings are in preparation. Methods of testing light metals and the proper test bars to use with light alloys are being studied. Committee B-7 has undertaken the collection and dissemination of reliable information on the service characteristics of light metals. This information will be correlated and printed annually in the reports of the committee, thus covering each year new developments in the light alloy field.

Metallography

Committee E-4 on Metallography has completed a chart for the classification of steels according to grain size which concerns only the size of the pearlitic grains and is independent of the conditions of the excess carbide. The chart includes eight grain size classifications accomplished by comparison of the hyper- and hypo-eutectoid zones at a magnification of 100 diameters. It is expected that this chart will shortly be presented to the Society as a tentative standard through Committee E-10 on Standards. Revisions of the metallographic test methods are under consideration looking toward the preparation of a single method covering testing procedures common to both ferrous and non-ferrous metals and alloys. A paper by W. H. Bassett, Jr. and C. J. Snyder described a very interesting "Method of Preparation of Lead and Lead Alloy Cable Sheath for Microscopic Examination."

Cement, Gypsum and Lime

Committee C-1 on Cement completed a revision of the standard methods for sampling and testing portland cement, extensive changes being made in the tolerances applying to testing apparatus together with a clarification of the text as well as the manual of cement testing. Particular attention has been given by the various subcommittees to such subjects as particle size of cement, accelerators and retarders, plastic mortar tests and the effect of temperature of cement at the time of use. A report on this latter subject which has been carefully studied presents a digest of available data supplemented by results obtained by the committee and also certain conclusions which it is felt the data indicated.

The Cement Reference Laboratory at the U. S. Bureau of Standards, a cooperative project of the Bureau and the Society under the sponsorship of Committee C-1, has continued its efforts to promote uniformity and improvement in cement testing, and is now engaged in a third tour among the cement testing laboratories throughout the country.

P. S. Roller in a paper on "Measurement of Particle Size with an Accurate Air Analyzer: The Fineness and Particle Size Distribution of Portland Cement" described an improved air-jet apparatus for determining fineness of portland cement powder from 1 to 100 microns.

Committee C-11 on Gypsum has revised the standard methods of testing gypsum and gypsum products, which revised methods it proposed to advance to standard during the coming year. The committee is continuing its investigation of the uses of gypsum and anhydrite as a retarder for portland cement. Investigations are also being made of the sand content determination of set plaster, drying out of slow-setting plaster briquets, ammonium-acetate method of analysis of gypsum and calcined gypsum, and time of set of gypsum plaster.

The Committee on Lime is contemplating the advancement to standard of the tentative specifications for sand for lime plaster. A revision of the standard specifications for quicklime for structural purposes to include all types of quicklime, and changes in the soundness test for hydrated lime are also being considered. It is also planned to eliminate the physical test methods for lime from the various specifications and to publish them collectively. Studies are being made by the committee of methods for determining tensile and compressive strengths of lime mortars, including size and shape of lime mortar specimen and conditions of storage. A method for determining the cubic foot weight of hydrated lime is under development. A special study of hydraulic lime and the preparation of specifications for its use in the construction field has been initiated by a new subcommittee on this subject.

Brick and Refractories

Committee C-3 on Brick at a meeting held at Atlantic City during the annual meeting approved for submission to letter ballot a revision of the tentative specifications for concrete building brick which if approved will be submitted to the Society through Committee E-10 on Standards.

The Committee on Refractories prepared a method for determining particle size of ground refractory materials. This method, which provides for both wet and dry sieve analysis, was standardized in view of the increasing quantities of ground and crushed refractory materials being purchased on screen specifications.

The subcommittee on spalling is following and encouraging the work at Mellon Institute, where wall sections are being air spalled and water spalled before and after slagging. The committee feels that a test which more nearly simulates service than any that has been yet suggested will be the only satisfactory answer to the question of whether a given brick sample will stand a given service. The subcommittee on temperature measurement has been doing some excellent work in the comparison of temperature measurements, especially in various P.C.E. furnaces and using various fuels. During the coming year, this committee will make a survey of temperature measurements and atmospheric conditions in load test furnaces of various types.

Committee C-8 is making fine progress in the preparation of specifications for refractory insulation. This work is an amplification of the committee's original program for determining methods and standards for thermal conductivity. The work is of particular interest since at least two new high-temperature insulating materials have come on the market during the past year and indications appear to be that in the very near future there will be several materials for furnace linings which will be not only good insulators but primarily refractories.

Pipe and Drain Tile

The Committee on Clay Pipe completed an extensive revision of the standard specifications for clay sewer pipe, which was issued as tentative. The revisions, in general, have been made to conform to current practice and to bring the specifications partly into agreement with the specifications of the Federal Specifications Board.

The researches sponsored by Committee C-6 on Drain Tile, which include a study of loads on pipe in wide ditches, studies of the durability of concrete drain tile in alkali and peat soils and studies of durability of concrete in alkaline soils and waters have been continued and progress reports have been issued. Conditions in the agricultural sections of the country during the past two or three years have been such that there has been very little activity in the tile drainage industry and accordingly no general demand has been made for any revision or extension of the standards for drain tile.

Masonry Building Units

Committee C-10 on Hollow Masonry Building Units is devoting much of its attention at this time to proposed revisions of the specifications for shapes and weights of structural clay tile. The study is concerned also with definitions of the term "cells" and the expression "hollow masonry building units," both of which concern structural clay tile and concrete masonry units. In the current specifications, the only restrictions on the design or shape of units are those of outer dimensions, number of cells, and weight. The many possible arrangements and sizes of the cells result in uncertainty as to whether some of the designs now being marketed meet the requirements of the standards. The subcommittee on concrete units is preparing specifications for non-load-bearing units and the subcommittee on definitions has prepared proposed definitions of terms applying to concrete masonry units.

Concrete and Concrete Aggregates

Committee C-9 on Concrete and Concrete Aggregates reported revisions in the standard tests for organic impurities in sands, the sieve analysis of aggregates and the making and testing of compression test specimens; also changes in the tentative tests for structural strength of fine aggregate and soundness tests of fine and coarse aggregates.

The revisions in the standards, which involved no fundamental changes in procedure, resulted from experience with the use of the methods and for the most part were for purposes of clarifying and amplifying statements of procedure and of bringing them into conformity with similar standards of other organizations.

A proposed method of testing concrete and concrete aggregates by freezing and thawing was presented as information because of the importance of this subject and with the hope that the summary of this work would be of assistance in guiding further investigations.

The subcommittee on ready-mixed concrete has completed the purchase specification for this material and expects to present it as a tentative standard at the next annual meeting. The specifications will cover the materials, proportioning, mixing, delivery, quality, inspection, testing and acceptance of ready-mixed concrete for all purposes.

The digest of existing data relating to permeability of concrete is expected to be completed in time for presentation in June. The committee has undertaken the development of a standard laboratory method for the determination of the efficiency of a curing material. Progress has been made in the work on the standard method of test to determine the volume changes in concrete, which it is expected will be presented at the annual meeting in June.

The committee has been very active in fostering the symposium on significance of tests of concrete and concrete aggregates to be presented at the 1933 annual meeting.

In a paper on "Tests on Consistency and Strength of Concrete Having Constant Water Content," Inge Lyse described a simplified procedure for designing concrete mixes. Further studies of "Volume Changes of an Early-Strength Concrete" were described in a paper by E. R. Dawley.

The organization of Committee C-12 on Mortars for Unit Masonry was completed during the year with the appointment of some 17 subcommittees to consider the various subjects comprising the comprehensive program of work.

The subcommittee on unit masonry construction practice is working on a preliminary draft of recommendations for the use of mortars in unit masonry construction, which will be submitted to the subcommittee for criticism and suggestions. At a later date, such investigations as are deemed necessary by the subcommittee will be outlined and presented to Committee C-12.

The subcommittee on efflorescence and staining is making an effort to collect all available information on efflorescence and staining, its causes and correction. A preliminary report on this work should be forthcoming at an early date.

The subcommittee on mortar aggregates has outlined a comprehensive program of work, while the subcommittee on preparation of mortars is collecting information on present practice.

Paints, Pigments, Preservative Coatings

Committee D-1 on Preservative Coatings for Structural Materials has adopted specifications for ethylene glycol mono butyl and mono ethyl ethers, also for acetate esters of mono ethyl ethers. Changes have been tentatively made in specifications for white lead and in nine methods of routine analysis of various types of pigments. Revisions in the specifications for putty and a test for non-volatile matter of nitrocellulose lacquers and lacquer enamels were accepted. A method of test for comparative hiding power of paints was developed following a series of cooperative tests on the Pfund cryptometer and the Gardner brush-out board for measuring the hiding power of wet paints.

A study of accelerated weathering tests for different types of coatings, such as house paints, enamels, varnishes and lacquers, is being made. Proposed specifications for wood to be used as test panels in accelerated weather tests have been prepared. Further studies of anti-fouling paints will include a series of exposure tests conducted in tropical waters.

The first objective of the work on underground pipe protection initiated last year will be the development of specifications for priming coatings to be applied to steel pipe at the mill for protection during storage and shipment. Cut-back primers, general utility primers of a temporary nature, and ideal or permanent types of primers will be considered.

Work is under way on specifications and tests for mineral diluents for lacquers, and mineral solvents designed for specific use with various types of synthetic resins. Cooperative studies are being made on hardness and abrasion resistance of lacquer films. Studies are being made of gloss with the idea of defining it more specifically and presenting the best available method of giving it quantitative value.

Petroleum Products and Lubricants

Committee D-2 on Petroleum Products and Lubricants rendered a distinct service during the year to the petroleum, automotive and other industries through the development of a viscosity-temperature chart, a convenient means for ascertaining the viscosity of a petroleum oil at any temperature within a limited range provided viscosities at two temperatures are known. The chart is useful for the solution of many problems, such as those involving a prediction of performance under varying temperature conditions of crankcase oil, free-wheeling lubricant, transmission lubricant, etc.

The outstanding features on the programs of the subcommittees have been the revision of the methods for determining color of lubricating oils and of petrolatum by means of the Union colorimeter; also revisions of the Reid vapor pressure test for gasoline and the gravity test for petroleum. Work has been undertaken to perfect the Sligh oxidation test so that reproducible results may be obtained. Studies are being made of the flash point of cut-back asphalts and similar materials.

The technical committees concerned with the relation between test data and service performance of materials and with the preparation of material specifications for petroleum products and lubricants have also been active. The committee on gasoline reported results of service tests carried on to correlate the maximum gum content as determined by test methods with the behavior of motor fuels in service. Proposed methods for determining the gum content of gasolines have been developed and studies are being made of gum stability.

As a result of increasing compression pressures resulting from improvements in automobile design, the anti-knock value of gasoline is of increasing importance. The Cooperative Fuel Research Committee has been working on this problem for the past four years. Committee D-2 has endorsed the C.F.R. engine for measuring octane numbers of motor fuels, and a proposed method based on the apparatus and procedure developed by the C.F.R. Committee is being considered by Committee D-2 as a tentative standard.

The technical committee on motor oils is sponsoring a symposium on motor lubricants, referred to elsewhere in this BULLETIN, which will comprise the technical program of the Regional Meeting in New York City on March 8, 1933. The technical committee on fuel oils (including Diesel fuels) is cooperating with a committee of the Federal Specifications Board on a revision of the Federal specifications for fuel oils. The technical committee on stoddard solvent has under consideration a revision of the commercial standard specifications for this product.

Road Materials

The Committee on Road Materials approved as tentative the methods of chemical analysis of calcium chloride and modified the slump test for consistency of concrete in order to clarify the procedure for filling the mold. Tests on fine aggregate type bituminous mixtures were reported in connection with a cooperative study of methods for the analysis of bituminous paving mixtures. The methods investigated included the centrifuge tube method, Dulin rotarex, Barber asphalt and the thimble extraction apparatus, the detailed procedures of which were included with the report as information.

Bituminous Waterproofing

The Committee on Bituminous Waterproofing and Roofing Materials presented a valuable report on accelerated weathering tests of bituminous roofing materials and also a critical review of the results obtained in the refined ductility tests for bituminous roofing materials reported last year. Important studies undertaken by the committee include analytical methods for membrane roofing materials, test methods for bituminous emulsions used for waterproofing, test methods for bituminous joint compounds for sewer pipe, and studies of expansion coefficients of bituminous products. Papers of interest in connection with the work of this committee were presented by J. M. Weiss on "The Volatile Combustible Matter of Coal-Tar Pitch," and by G. W. Clarvoe on "An Apparatus and Method for Measuring the Consistency of Roofing Putties and Fibrous Roof Coatings."

Fire Tests

The general economic conditions have delayed that part of the work of Committee C-5 on Fire Tests of Materials and Construction concerning the proper procedure for fire tests of untreated and chemically treated wood. A new subcommittee has been appointed to prepare specifications for the fire-testing of scaffolding of wood, in which the material in use may possibly have had a surface treatment, if not impregnation, to render it fire resisting. The development of suitable fire tests of acoustical linings in buildings and similar interior finishes is to be undertaken by another subcommittee.

The committee that is considering methods for fire tests of wall opening protectives has confined its attention for the time being to the proper tests of the protectives on interior wall openings, that is, tests of doors of various materials and different modes of operation. It is hoped that some definite recommendations will be submitted at the annual meeting next June. At that time Committee C-5 may also be prepared to recommend the adoption as standard of its present tentative specifications for fire tests.

Timber

Committee D-7 on Timber has under consideration a revision of the standards for timber. This work is being carried on in cooperation with a committee of the American Railway Engineering Association. Volume and specific gravity correction tables for creosote, creosote coal-tar solution and coal tar issued during the year as tentative were prepared as a result of studies made at the U. S. Bureau of Standards. Consideration is being given to methods of analysis of creosote and allied products used in the preservation of wood. Further studies are being made of apparatus and methods for determining moisture content of timber.

Coal and Coke

Committee D-5 on Coal and Coke recommended for publication as tentative a method of sampling coke for analysis, and a method of sampling coal by the ball-mill method. A new subcommittee on coal friability will investigate present methods used in testing friability of coal with a view to standardizing this test, which is intended as a measure of the degradation in size of coal on handling and is commercially important.

Progress has been made in the study of the various factors that affect the agglutinating value test for coal. A method has been developed and is now being applied to various coals of known coking characteristics. The test consist of mixing pulverized coal with closely sized Ottawa sand in a series of definite proportions and carbonizing the mixtures under closely prescribed conditions. The crushing strength of these carbonized buttons is taken as a measure of agglutinating value.

In cooperation with a subcommittee of Committee E-8 on Nomenclature and Definitions a definition of the term "coke" was prepared which is now under consideration by Committee E-8. Definitions of the terms "net calorific value" and "gross calorific value" are still under consideration. The standard method for shatter testing of coke is being reviewed for revision. Experimental work is being conducted on the comparison of different methods for determining grindability or pulverizing characteristics of coal, which is of importance in the commercial preparation of pulverized coal.

Electrical Insulating Materials

The Committee on Electrical Insulating Materials has been very active in the development of methods of testing mica, varnished tubing and laminated rods used in electrical insulation. Improvements were made in the tentative and standard methods and further progress reported in the preparation of purchase specifications for varnished insulating tape.

Extensive studies on insulating varnishes, paints and lacquers include development of test methods for hardness and oil resistance and also resistance to acids and alkalies. Tests are being developed for determining the time of drying, impregnation, bonding and elasticity of the saturating varnishes. Test methods have been prepared for determining apparent density, sieve analysis and sampling of molding powders and work is under way on plasticity tests and on a classification of these materials. Consideration is being given to the standardization of molds for test specimens and studies are continuing on the impact fatigue of molded insulating materials.

The work on insulating tubes, plates and rods includes studies of test methods for compressibility, dielectric strength, conditioning, arc resistance, impact test, punching quality and resistivity.

In view of the importance of sludging characteristics of insulating mineral oils, extensive studies have been made of life tests and other sludge tests. During the year the Sligh test has been modified for application to insulating oils and further consistent results have been obtained by various laboratories.

Power factor tests for solid and liquid insulation at frequencies in the order of 60 cycles are being developed to supplement the present methods which cover test procedures and frequencies in the order of 1000 to 1500 kilocycles and at 1000 cycles. The development of test methods for insulating papers and fabrics includes procedures for acidity, folding endurance, and edge tear.

Rubber Products

Committee D-11 on Rubber Products has prepared new tentative specifications for insulated wire and cable: performance rubber compound, for friction tape for general use for electrical purposes and for rubber insulating tape. The new tentative methods of chemical analysis of rubber products have been adopted as standard.

Work is in progress on test methods for wrapped and braided hose intended to replace the present detailed hose specifications which are little used. The proposed methods have been circulated for criticisms in advance of publication. In the study of life tests and correlation of accelerated aging with natural life, considerable data have been accumulated which are being closely studied. In the work on rubber products for absorption of vibration, a special instrument for the determination of compression set at elevated temperatures has been investigated by the subcommittee which is working on a standard method for conducting this type of test. This subcommittee is also undertaking the study of methods for testing fatigue under repeated compression in products used for the absorption of vibration. A new subcommittee is being organized for the standardization of methods of testing adhesion between rubber and metal with particular reference to the use of this combination in automotive products used for the absorption of vibration. The recently organized subcommittee on dynamic fatigue testing has formed two sections, one for investigation of test methods on flexing of rubber fabric combinations which results in ply separation and the other for the investigation of flex cracking of rubber.

Textile Materials

Committee D-13 on Textile Materials formulated new specifications for tolerances and test methods for tubular sleeving and braids. Revisions have been made in the specifications covering asbestos yarns, sewing threads and rayon. A newly organized subcommittee on wool is actively engaged in studying test methods for wool and worsted materials.

Work in progress includes the study of automotive webbing, shoe tapes, asbestos roving, with a view to drawing specifications; calibration methods for tire cord and horizontal testing machines; twist testers for single yarn; tire cords made from various types of cotton, the object being to set up standards of strength for the various types. Methods are being studied for the determination of shrinkage of light and medium weight cotton fabrics; magnetic iron in asbestos fiber and products; fiber content of rayon yarn and fabric; metallic weighting and water-soluble finishing materials in silk; and twist and take-up in silk yarns.

Building Stone and Slate

Committee D-18 on Natural Building Stones has prepared a tentative standard covering samples of stone for testing and a sampling procedure, also methods for the tension test. The committee has recommended for adoption as standard the present tentative methods of compression, flexure, shear and absorption testing of natural building stones. A study is being made of accelerated weathering tests in an endeavor to develop a practical and reliable test for determining the true relative weathering properties and durability of stone.

The committee is studying expansion and contraction phenomena of stone, with the idea of developing some appropriate test for determining the manner in which building stone may be affected by temperature changes. Consideration is also being given to the development of appropriate fatigue tests for stone.

This committee expects to complete a procedure covering the uniform cubing of stone to be employed both in developing quantities for contract estimates, covering both the supply of rough stock and the execution of cut stone work.

The Committee on Slate is cooperating with Committee D-9 on Electrical Insulating Materials in studies of specifications and methods of test for slate as an insulating material. Investigations are being made by members of the committee on improved methods for water absorption and acid resistance tests for slate.

Methods of Testing and Nomenclature

Committee E-1 on Methods of Testing reports considerable activity on the part of its technical committees concerned with the various phases of testing technique and procedures. The committee presented to the Society subsequent to the annual meeting tentative methods of Rockwell hardness testing and revised methods of tension testing of metallic materials. The committee also approved a definition of the term "yield strength" and a revised definition of "elastic limit," which definitions were issued as tentative to supersede the present terms "yield point" and "elastic limit."

Following the circulation of a questionnaire requesting data on current practice in speed of testing, the committee presented a summary of the reports received which showed a wide divergence in practice among the various laboratories, indicating that considerable work will be necessary in order to bring conflicting views into agreement. A new section was organized during the year on calibration of testing machine and apparatus. A paper of considerable interest to this section was presented by H. F. Moore, J. C. Othus and G. N. Krouse on "Full-Load Calibration of a 600,000-lb. Testing Machine." The importance of "Temperature Effects in Elastic and Plastic Deformation" was shown in a paper delivered by M. F. Sayre.

The round-table discussion on "Acquisition of Good Data," mentioned previously, was a contribution of the technical committee on presentation of data.

Attention has been given by various investigators to the development of new apparatus for studying and promoting the knowledge of engineering materials. An ingenious form of endurance testing apparatus for wire rope is described in a paper by A. V. deForest and L. W. Hopkins on "The Testing of Rope Wire and Wire Rope." An instrument providing an inexpensive and practical means for determining yield strength of materials in routine tests was developed by R. L. Templin and described in a paper on "An Automatic Autographic Extensometer for Use in Tension Tests of Materials." A paper by R. E. Davis and R. W. Carlson on "The Electric Strain Meter and Its Use in Measuring Internal Strains" described a remote reading instrument devoted primarily to determining deformations and temperatures within mass concrete. This apparatus is a valuable addition to the several instruments of this kind made available in recent years for remote recording or reading.

Personals

News items concerning the activities of our members will be welcomed for inclusion in this column.

WARREN C. BRUCE, formerly chemical engineer and sales manager with the Barnsdall Tripoli Co. has entered consulting work in chemical engineering with headquarters in St. Louis. He is specializing in the application of chemical engineering to the materials and methods of construction.

F. J. STANLEY is now connected with the Locomotive Finished Materials Co., Atchison, Kans.

W. R. HOPKINS, formerly with the Lycoming Manufacturing Co. is now located at the Power Plant Branch, Air Corps, U. S. A., Wright Field, Dayton, Ohio.

A. T. RICKETTS has severed his connection with the Trojan Engineering Corp. to become associated with the Engineers Advisory Board, Reconstruction Finance Corp.

WALTER M. MITCHELL is now Metallurgical Engineer, Sales Dept., Illinois Steel Co., in New York City.

JAMES F. SANBORN, Consulting Engineer, Sanborn & Bogert, New York City, and EDWARD N. NOYES, of Myers, Noyes & Forrest, Consulting Civil Engineers, Dallas, Texas, have been elected directors of the American Society of Civil Engineers.

RALPH MODJESKI, Consulting Engineer, New York City, who was responsible for the design of the Philadelphia-Camden bridge was honored recently when he was presented a gold medal and an engrossed scroll by the Governor of Pennsylvania in recognition of his services to the state.

E. W. BAUMAN, Engineer of Tests, Tennessee State Highway Dept., was recently elected President of the Engineering Association of Nashville.

William F. Edwards

1856 – 1933

William F. Edwards, Director of Research, U. S. Testing Company, who died at his home in Englewood, N. J., on January 13, was a member of the Executive Committee of the Society from 1926 to 1928 and served as chairman of A.S.T.M. Committee D-13 on Textile Materials from 1924 through 1928. Doctor Edwards was an authority on the physics and chemistry of metallurgical processing and textile manufacture. He was president of the University of Washington at Seattle from 1897 to 1900, having served there from 1895 to the time he became president as professor of physics and chemistry. He graduated from the University of Michigan in 1890.

In 1900 he gave up his educational work to devote his efforts to industrial chemistry and physics. For several years he was director of research for the Guggenheim Foundation. During the World War he was director of research for a combined laboratory of four of the leading automobile manufacturers in Detroit and played an important part in the development of high-strength alloy steel for automotive use.

Doctor Edwards had been a member of the Society since 1919 and was a member of several other associations and scientific bodies. He contributed extensively to scientific journals and was always willing to share his wide technical knowledge. Only last June at the A.S.T.M. annual meeting in Atlantic City he presented a highly commended paper on "Enzyme Action in the Textile Industries." He had been a member of Committee D-13 since 1923. He contributed a great deal of his time and efforts to A.S.T.M. work and his profound technical knowledge was frequently called upon by the committee. He had a most pleasing personality and his passing will be keenly felt by all who worked with him and by those who knew him.

William R. Webster

(Charter and Honorary Member)

1855 – 1933

On Wednesday, January 11, there passed away William R. Webster, Consulting and Inspecting Engineer, one of the seven men who applied for the charter incorporating the Society, and one of the Society's four honorary members. He was one of the most prominent engineers of his day and achieved an international reputation. His home was in Philadelphia.

Mr. Webster at the age of twenty was graduated as a civil engineer from Massachusetts Institute of Technology. His life's work lay chiefly in the metallurgical field and as a consultant and director of inspection his services were in wide demand. He was retained by several foreign countries and firms. He served many railroads in South America and abroad and for a long period was in charge of the inspection for Japanese Railroads of their materials purchased in this country. One of his most important assignments was the inspection of the steel for the Pennsylvania Station in New York City and the subways beneath it and he also was retained in connection with the Blackwell's Island Bridge.

One of his outstanding accomplishments was the preparation of data from which the physical properties of steel could be reliably predicted knowing its chemical composition, the possibility of which had been seriously questioned in the early days of steel making. For this noteworthy work, he received in 1897 the award of the Scott Medal by the Franklin Institute. Mr. Webster invented a machine to head eyebars in one operation and in other ways he contributed greatly to progress in the steel industry. He took a leading part in the work that eventually led to the grading and sale of pig iron by its chemical composition instead of by fracture.

Mr. Webster's connections with the Society began with the year of its organization as an American Section of the International Association in 1898, which led in 1902 to the incorporation of the A.S.T.M. Mr. Webster was a member of the Society's Executive Committee from 1907 to 1912. He was the first chairman of the present Committee A-1 on Steel, which when originally organized in 1898 was an enlarged branch of International Committee No. 1. He served as chairman until 1913. A great deal of the success of the work of that committee is rightly attributed to the foundation he and his fellow officers laid at that time. In 1927, at the exercises in celebration of the Twenty-fifth Anniversary of the Society's founding, Mr. Webster was made an Honorary Member.

Mr. Webster had been a member of the American Institute of Mining and Metallurgical Engineers since 1892 and was an officer from 1895 to 1897. He became a member of the Franklin Institute in 1887 and subsequently served on several of its committees. In addition, he had been a member of the American Society of Civil Engineers since 1899 and was a member of the British Iron and Steel Institute. He was the author of several technical papers which appeared in our own *Proceedings* and those of other societies.

He always had the welfare of this Society at heart and how much its growth and achievements must have meant to him, one of its founders! No one in A.S.T.M. work can lack appreciation of the foresight of those men who formulated the purposes of the Society and determined its early policies. The passing of the years but adds to the luster of their names.

PROFESSIONAL CARDS

PROFESSIONAL CARDS will be accepted for inclusion on this page from Consulting Engineers, Metallurgists, Chemists, Testing Engineers and Testing Laboratories.

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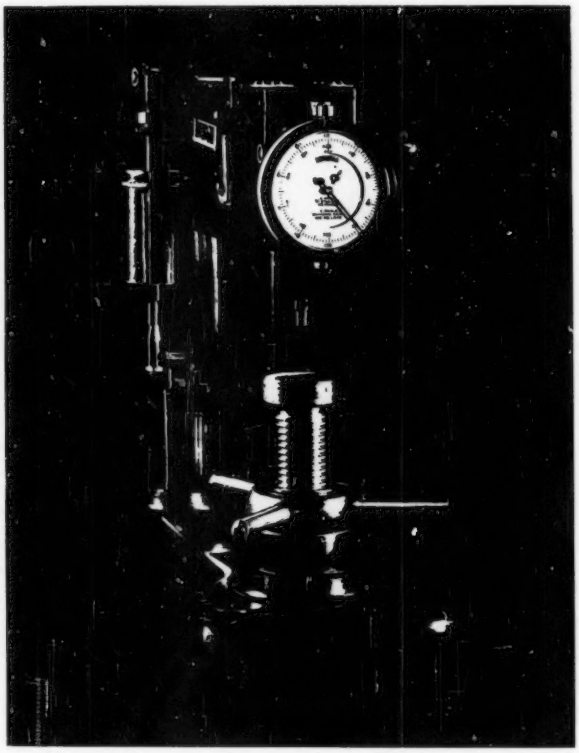

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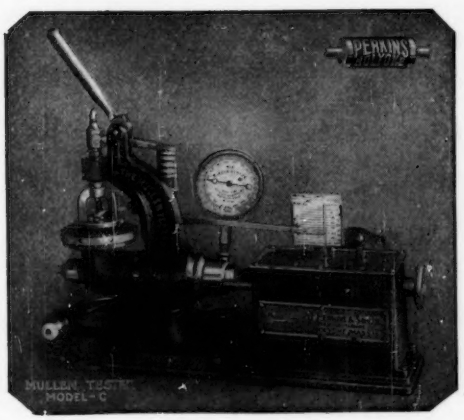

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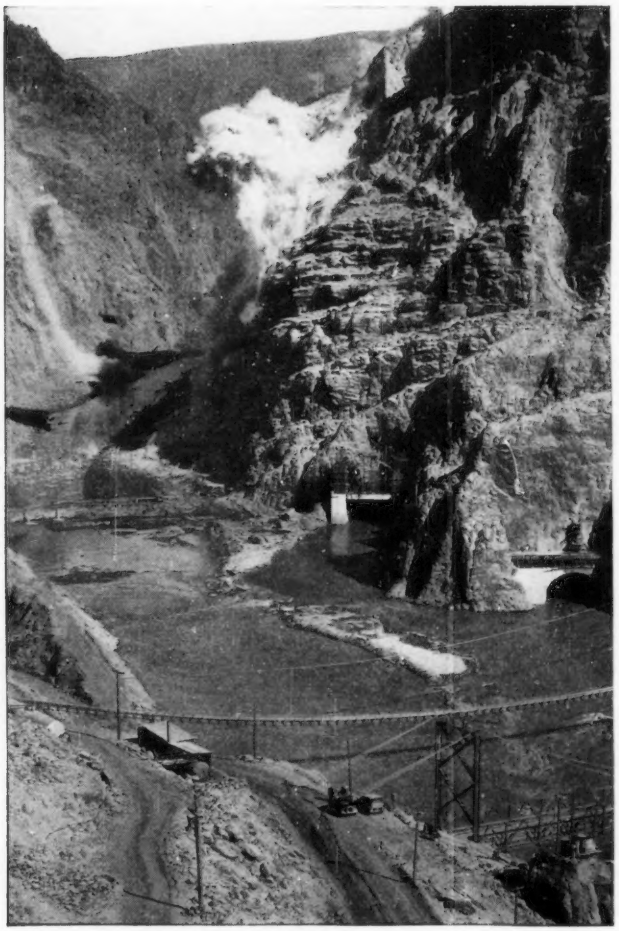

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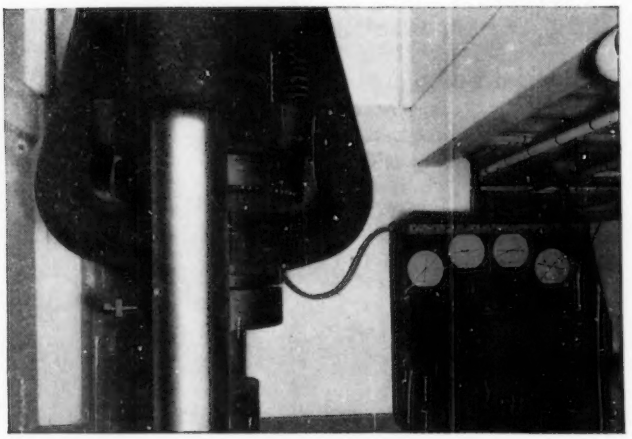

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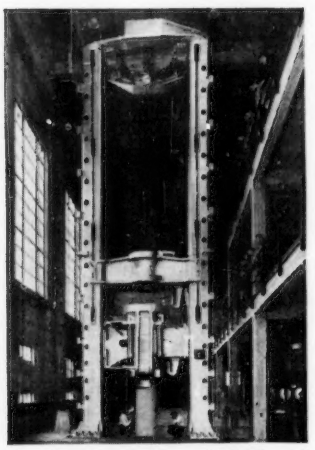

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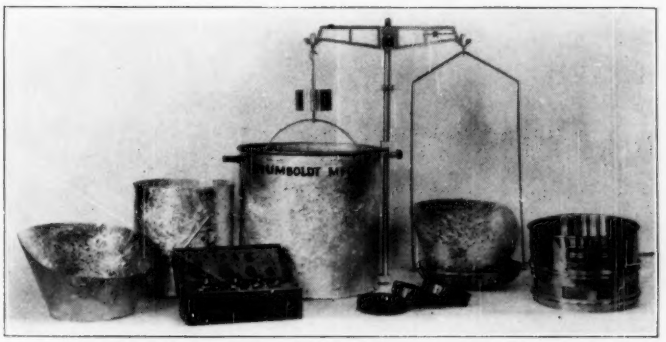

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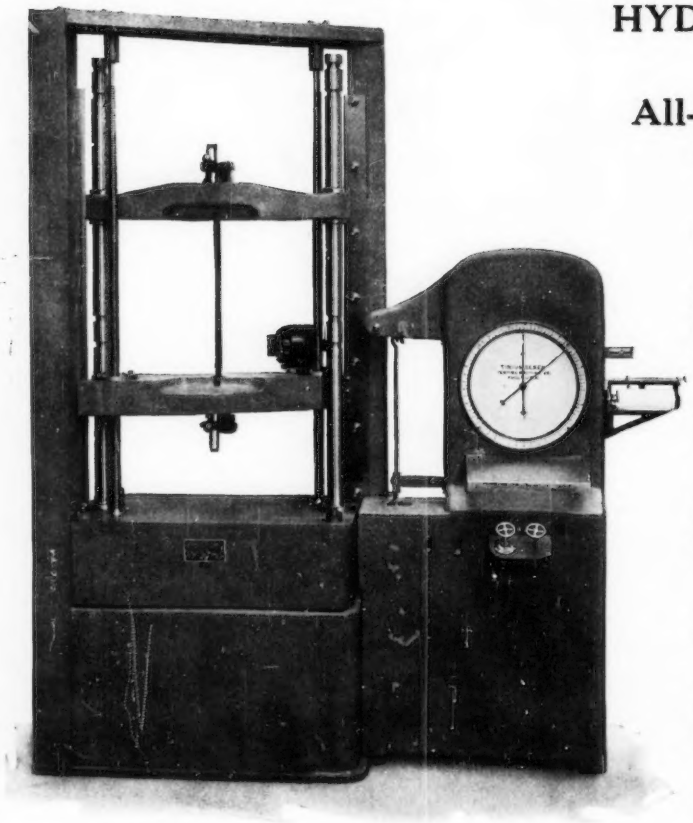

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